SUMMARY

Substantive progress was made in April in all areas of Environmental Restoration (ER) activities.

Remediation work continued at the B/C, D, DR, and 300 Areas, where soil excavation is proceeding ahead of schedule. Site work and bid evaluations for expansion of the Environmental Restoration Disposal Facility (ERDF) also began in April.

Approximately 350 of an estimated 1,500 drums discovered at the 618-4 burial ground have been removed. The drums contain uranium shavings that may be pyrophoric. Until a plan can be developed to properly dispose of the barrels, all 618-4 burial ground excavation work has been suspended. The drums have been stabilized and will be monitored until a determination is made concerning final disposition. The burial ground has been stabilized and remediation activities have been relocated to the north process pond.

Six additional plumes were discovered at the B/C Area 116-C-5 remediation site. Due to the discovery of additional plumes and unexpected waste types, several *Hanford Federal Facility Agreement and Consent Order* (*Tri-Party Agreement*) milestones will need to be resequenced. A *Tri-Party Agreement* change package has been prepared and will be discussed with the regulators at the quarterly review meeting on June 2.

Five pump and treat systems are operating, along with one vapor extraction system. The 200-ZP-2 vapor extraction unit performed well during its first month of operation, after a six month shutdown for upgrades. All pump and treat units operated at or above planned availability levels.

Surveillance and maintenance (S&M) activities proceeded according to schedule. B Plant transition activities are on schedule for turnover of the facilities to the ER Project at the end of fiscal year 1998 (FY1998). Plutonium/Uranium Extraction (PUREX) punchlist items are scheduled for completion by July 31.

The *Groundwater/Vadose Zone (GW/VZ) Integration Project Plan* (DOE/RL-98-03) was formally issued on April 13. The plan includes outlines and narratives for development of a *Project Specification Plan, Project Management Plan, Cost and Schedule Baseline,* and a *Public Involvement Plan.* On April 8, ER management met with the U.S. Department of Energy (DOE) Under-Secretary Moniz in Washington D.C. for a briefing on the plan and proposed GW/VZ actions.

Solid progress was achieved at the C Reactor Interim Safe Storage (ISS) project. Installation of the safe storage enclosure (SSE) is slightly behind schedule, but the contractor has accelerated work and full recovery is expected. ISS of the F and DR reactors is proceeding on schedule. Decommissioning activities at the 233-S Plutonium Concentration Facility continued to focus on operational readiness review (ORR) items.

There were no lost workday cases in April.

ACCOMPLISHMENTS

- **Remedial Action and Waste Disposal Project Highlights**

  B/C Area Remediation. Approximately 56% of the excavation and load out of soils and demolished concrete from the 116-B-11 retention basin waste site have been completed. 23,419 tons of waste were excavated from the basin in April and shipped to the ERDF.

  Six additional plumes have been identified at the 116-C-5 retention basins remediation site. Current plans are to expedite the work and develop the site verification package. The sampling and modeling results completed at the 116-C-1 excavated site show that the site can be backfilled.

  Final analysis and residual radioactivity (RESRAD) modeling of the 116-C-1 process effluent trench, using data from the vadose zone test pit, indicates that all remedial action goals for direct exposure, protection of groundwater, and protection of the Columbia River have been met. The current schedule is to complete the closeout and verification packages in May.

  160,151 tons of material have been removed and disposed in FY1998 from the B/C sites. To date, 458,201 tons of waste have been removed. Included in April's material was the last container containing pipeline metals, which was removed from the 116-B-1 retention basins. This completes cleanup of this site.

  D Area Remediation. Remedial action work at the 100-D site continued. The major excavation activities occurred in the 116-D-7 retention basin. A total of 25,016 tons of material were excavated from this site during the month, for a total of 335,659 tons since work began in November of 1996. 155,519 tons of material have been removed and disposed in FY1998. Environmental Restoration Contractor (ERC) and subcontractor personnel have completed 394 workdays (covering 557 calendar days) at this site without a lost time accident.

Laser-induced breakdown spectroscopy (LIBS), an emerging technology for characterizing subsurface soils, had been planned for use in the 100-D Area to detect chromium in the vadose zone. As a result of unsatisfactory prototype field tests at the subcontractor's facilities, the LIBS subcontract will not be issued. In lieu of LIBS, plans for soil sampling using cone penetrometer tools are being considered, with mobilization targeted for early May. There is a possibility, however, that prioritization of the remaining FY1998 ER Project budget may result in scaling back or eliminating this work in FY1998.

200 Area Remedial Actions. An internal draft of the *200 Area Implementation Plan* has been prepared to support the *Tri-Party Agreement* milestone of August 31. The *Implementation Plan* is based on the annotated outline agreed to by *Tri-Party Agreement* representatives, and a review draft is on schedule for completion on May 8.

300 Area Remediation. Approximately 350 of an estimated 1,500 drums discovered at the 618-4 burial ground have been removed. The excavated drums may contain uranium mill shavings and, since some of these drums may have leaked the oil that covers the shavings, there is a potential for spontaneous combustion. Therefore, excavation of drums was discontinued and the drums at risk were overpacked and filled with an adequate quantity of mineral oil to cover the uranium shavings. A ground scan of the area, along with visual examination of the storage pattern of the exposed drums, indicates there are approximately 1200 drums remaining to be unearthed. Until a plan can be developed to properly dispose of the barrels, all burial ground excavation work has been suspended. The drums will be monitored until a final disposition is determined. The site has been stabilized and remediation activities have been moved to the north process pond.

3,656 tons of excavated waste from 300-FF-1 was shipped to ERDF during the month of April. 31,562 tons of material have been removed and disposed in FY1998. 61,963 tons have been removed and disposed to date.

ERDF/ERDF Expansion. During April, shipments totaling approximately 49,000 tons of contaminated waste were transported to the ERDF from all ER Project sources. To date, approximately 884,000 tons of material have been received and placed at the disposal facility since it opened in 1996.

A hydraulic cylinder failed on one of the transportation trucks while off loading a container at the ERDF. Due to a previous similar failure, cylinders of a new design were ordered and received by the subcontractor. The subcontractor worked extended hours to get part of the fleet back on the road in two days, and to complete modifications to the balance of the 18 trucks in seven days. More than 17 tons of lead were hand placed and grouted into two burial vaults that had been previously placed in the ERDF cell. The vaults will cure for 28 days before burial.

Nine proposals for the construction of two additional cells at the ERDF have been received. The subcontract calls for the construction of two side-by-side cells to provide continued waste disposal capacity for material being removed from waste site remediation and other ER projects. To meet a requirement set by the Environmental Protection Agency (EPA); a separate subcontractor will perform construction quality assurance (CQA). The CQA subcontract includes inspection and testing of the regulated portions of the cell (i.e., the liner and leachate collection system). Four proposals have been received for the subcontract. Award of both subcontracts is scheduled for late May.

Site preparations for the ERDF expansion are in progress. Installation and hydrostatic testing of the underground potable and raw water piping systems were completed. Chlorination and bacteriological testing of the new piping was also completed. The subcontractor completed cut, fill, compacting, and final grading of the construction support pad, construction access roads, and bulk water station pads. The subcontractor also completed the installation of signs for future construction. The installation of electrical utilities is expected to begin in May.

General. The *Remaining Sites Focus Feasibility Study* (FFS) and *Proposed Plan* (PP) are moving towards completion. These documents were issued to EPA and the Washington State Department of Ecology (Ecology) in December 1997. Comments were received from both Ecology and EPA, and initial comment resolution meetings were held. No major issues were raised. Upon completion, the plans will be issued for public comment.

- **Groundwater Management Highlights**

Five pump and treat systems are operating, along with one soil vapor extraction system. The 200-ZP-2 soil vapor extraction unit performed well during its first month of operation, after a six-month shutdown for upgrades. All pump and treat units operated at or above planned availability levels.

Well Drilling, Sampling, Maintenance, and Decommissioning. The subcontractor mobilized and began drilling on April 3 for the immobilized low activity waste disposal complex. One deep groundwater well, drilled to 480 feet, was constructed as a *Resource Conservation and Recovery Act* (RCRA)-compliant monitoring well. Two accompanying shallow vadose characterization wells were drilled and sampled to 50 feet below the surface. The contractor completed the work and demobilized on April 28.

The planning process is continuing on 10 RCRA-compliant monitoring wells that are being planned for the 200 W area. A draft request for proposal (RFP) was developed and then placed on hold pending final determination regarding sampling requirements (and other performance requirements). The work is being performed to comply with RCRA operational monitoring requirements.

Well sampling continued at various locations around the Hanford Site. Samples were collected at approximately 152 sites during April. Routine and non-routine well maintenance activities including installation and removal of submersible pumps, well clean out, brushing, bailing, and down hole camera surveys, were completed on 64 wells during April.

Due to budget limitations, there are no longer any well decommissioning activities scheduled for the balance of FY1998.

Long-Term Monitoring. The *Quarterly RCRA Groundwater Monitoring Report* was completed. Installation of 10 RCRA monitoring wells (*Tri-Party Agreement* milestone M-24-00J) has been initiated. Sampling is ahead of schedule on the long-term monitoring wells. For the year-to-date, 627 samples have been taken (versus 599 planned).

Two groundwater modeling consolidation workshops were held with representatives from DOE-Richland Operations Office (RL), EPA, Ecology, US Geological Services, the Nez Perce and Yakama Tribal Nations, and Hanford Site contractors and their subcontractors.

Spectral gamma logging was completed in 21 wells at the 216-Z-1A, 216-Z-9, and 216-Z-12 cribs; cursory examination shows little if any contamination detected.

Interim Action Monitoring. Monthly sampling activities at the100-HR-3 and 100-KR-4 compliance wells, and quarterly sampling at 200-UP-1 and 200-ZP-1, were completed.

200-ZP-1 Pump & Treat. 25,039,000 liters of groundwater were processed during April, removing 87.85 kg of carbon tetrachloride. For FY1998, 179,459,000 liters have been processed with 1,561 kg of carbon tetrachloride removed. From inception to date, 458,167,000 liters have been processed. Nine granular activated carbon containers were shipped for regeneration.

200-ZP-2 Vapor Extraction. After a six-month shutdown for upgrades, the system was restarted on March 30 and it ran with good operating availability and no major problems during April. 606,300,000 liters of vapor were processed during the month, removing 77.8 kg of carbon tetrachloride.

N-Springs Pump & Treat. Clino changeout was completed and the system operated at normal levels during April. 80 containers of waste were removed. 9,457,000 liters of groundwater were processed in April, with 0.008 curies of strontium removed. 61,864,000 liters of groundwater have been processed for FY1998 to date, removing 0.055 curies of strontium. 254,800,000 liters have been processed from inception to date.

HR-3 Pump & Treat. The system was shut down for two days during April to change out valves. Two warranty repairs were made at the 100-HR-3 and KR-4 systems during April. The heating, ventilating and air conditioning (HVAC) control circuit was repaired and a pipe leak was repaired in the high-density polyethylene (HDPE) piping between the D transfer pump house and the H treatment building. 20,232,000 liters of groundwater were processed during the month of April, with 3.1 kg of chromium removed. 155,026,000 liters have been processed for FY1998 to date; 20.5 kg of chromium has been removed. 228,815,000 liters of groundwater have been processed from inception to date, with 24.89 kg of chromium removed. 286,815,000 liters have been processed to-date (this includes D Area transfer treatability tests before 100-HR-3 start-up).

KR-4 Pump & Treat. During resin changeout in March, noticeable amounts of calcium were found in the vessels. Samples of the water indicated that extremely hard water, with high concentrations of calcium, is being processed. Train B vessel #4 and Train A vessel #3 screens were cleaned and reinstalled. Offsite shipment of regenerated resin began. 18,069,000 liters of groundwater were processed for the month of April, removing 3.1 kg of chromium. 133,343,000 liters have been processed for FY1998/inception to date, with 16.8 kg of chromium removed.

UP-1 Pump & Treat. Planning is underway for performing pump upgrades. Decontamination and decommissioning (D&D) of the pilot plant are in the planning stages. 7,576,000 liters of groundwater were processed in April. 44,249,000 liters have been processed for FY1998 to date. 95,654,000 liters have been transported to the Effluent Treatment Facility (ETF) for processing. 232,020,000 liters have been processed from inception to date at both facilities.

Other. Disposal of organic/carbonaceous waste continues to be an issue. Presently, the ER Project cannot dispose of the waste due to regulatory requirements. Since the waste must be stored until a site-wide authorization is in place, it has been determined that the central waste complex in the 200 Area is the optimum location for long-term storage due to its ability for protection from extreme conditions. Long-term storage will be one of several disposition considerations included in the FY99-FY01 *Detailed Work Plan* (DWP), which is expected to be approved in late September.

A jurisdictional arbitration hearing resulted in the reassignment of operation of the pump and treat units from power operators, who are affiliated with the operating engineers, to nuclear process operators, who are affiliated with oil, chemical, and atomic workers (OCAW). This reassignment will require laying off the current operators and hiring, training, and certifying new operators. The ER Project is working with OCAW to negotiate this transition and its related training requirements. Additional funding will be required to support this effort.

- **Groundwater/Vadose Zone Integration Project**

On April 8, ER Project management met with DOE Under-Secretary Moniz in Washington D.C. for a briefing on the ER Project's plan for management and integration of Hanford Site groundwater and vadose zone activities. DOE/RL-98-03, *Management and Integration of Hanford Site Groundwater and Vadose Zone Activities*, was formally issued on April 13, and included outlines and narratives for development of a *Project Specification Plan, Project Management Plan, Cost and Schedule Baseline,* and a *Public Involvement Plan.*

On April 20-21, Pacific Northwest National Laboratory (PNNL) hosted a national laboratory meeting on Hanford Site GW/VZ science and technical needs. The two objectives of the meeting were to (1) identify and prioritize scientific and technical needs required to resolve the GW/VZ issues at the Hanford Site, while protecting the Columbia River; and (2) develop a team of national laboratory scientists with expertise in GW/VZ that can participate in the GW/VZ Integration Project. Approximately 60 scientists attended from across the nation.

Work scope formulation meetings were held with other Hanford Site projects regarding infrastructure, technology development, regulatory documentation, and environmental restoration activities.

The GW/VZ project team is re-examining the activities for the remainder of FY1998 in accordance with the project's current understanding of outcomes and deliverables. Since development of the original baseline there has been ongoing significant interactions between DOE-Headquarters (HQ), RL, Tribal Nations, regulators, stakeholders and the project team. These interactions have expanded the areas of public involvement of the remainder of FY1998.

Available funding for the remainder of FY1998 has not been identified. The Phase II scope of work requires $2.5 million in funding for FY1998. The current Phase II authorized funding of $993K is expected to be depleted by early June.

- **Decontamination and Decommissioning**

Substantive progress was achieved in the area of C Reactor ISS. Installation of the SSE is slightly behind schedule, but the contractor has accelerated work and full recovery is expected. ISS of the F and DR reactors is in progress and is proceeding on schedule. Decommissioning activities at the 233-S Plutonium Concentration Facility focused on ORR items in April.

C Reactor ISS. At the C Reactor ISS project, the following main items were completed in April: (1) de-energizing the temporary power & lighting (TP&L) hookups for the F elevator; (2) demolition and pipe removal activities for the south side water tunnel; (3) northwest and southeast tunnel concrete saw cutting; (4) south and north stairwell cement asbestos board removal; and (5) removal of the D elevator operating equipment and counterweights in preparation for the SSE. SSE work continued on the upper reactor cement asbestos board removal tasks.

Other work completed in April included performing a core bore to determine the type of fill material to be used between the fuel storage basin (FSB) and transfer pits in support of removal activities; pumping and treating approximately 30 gallons of lift station water to the ETF; and removal of approximately 40% of the cement asbestos boards attached to the FSB and metal exam facility (MEF).

F/DR ISS. This project is currently on schedule and is preparing for the hazardous material/housekeeping phase of work. Preparations for asbestos abatement are also underway. Initial site mobilization for craft support has been completed. Radiological surveys of buffer areas are 98% complete. Biological clean up is 95% complete. Additional trailers have been set up at the site to accommodate the increase of craft support for the project. The supply fan room (sodium burn facility) was transitioned from Fluor Daniel Hanford, Inc. (FDH) to the ER Project. This area is currently being used for staging and fabricating electrical materials scheduled for F/DR ISS activities.

Other F/DR ISS activities in April included (1) conducting a follow-up meeting to resolve comments on the DR reactor *Auditable Safety Analysis*; (2) completing the Phase I (FY1998 demo scope) data quality objective (DQO) workbook review and comment resolution; (3) issuing the Benton County Clean Air Authority (BCCAA) asbestos containing material notifications to support the start of asbestos abatement at F reactor (on April 27), and DR reactor (on May 11). Work packages for F & DR asbestos abatement were also completed; (4) completing radiological scoping surveys at the DR reactor; and (4) locating the DR project office trailer through the Hanford Site material excess program. Office relocation and setup is scheduled for May.

108-F Building Demolition Project. This project has been suspended due to lack of funding. The facility has been secured until the restart of demolition activities.

233-S Plutonium Concentration Facility Demolition. The contractor phase of the ORR was completed, along with viewing room pre-job radiological surveys. The pipe shroud/pipe cutting tests, and proficiency training in the non-process pipe gallery and pipe trench mockup, were also completed.

233-S D&D Project. 70 waste packages were generated from the non-process pipe gallery and were prepared for shipment to the ERDF. An additional 20% of pipe, asbestos, and equipment in the non-process pipe gallery was also removed.

Work packages have been prepared for adding an additional enclosure installation in the south weather enclosure. The enclosure will be used to control radiological contamination during work in the pipe trenches. A separate enclosure was installed in the can storage room to provide a controlled environment.

- **Surveillance/Maintenance and Transition Projects**

S&M activities continued throughout April. PUREX and B Plant transition activities are progressing on schedule to support turnover of the facilities to the ER Project. PUREX is scheduled to be complete by July 31, and B Plant by September 30.

202-S (REDOX). The graded *Safety Analysis Review* (SAR) document for the REDOX stabilization work is nearly complete. The SAR is scheduled for final approval in early June. The EPA has concurred with the SAP that was developed for removal of the plutonium loadout hood. The project provided the Department of Health notification regarding the air permit. Design of the glove bag has been completed.

Canyon Disposition Initiative (CDI). Upgrades continued on the 40-year-old 221-U canyon crane. The crane is moving towards operational status in support of accessing the process cells. Planning is in progress to begin concrete core sampling of the structure walls for structural integrity to determine the use of the canyon as a waste disposal unit.

PUREX and B Plant Transitions. The roof evaluation of the PUREX and B Plant facilities was completed. The subcontractor hired to perform the analysis indicated that both roofs needed to be replaced. Discussions are planned with FDH to discuss transition issues relative to the findings. 79 additional end point verifications were performed in preparation for B Plant transition to the ER Project. 976 out of 1,785 are now complete.

Other S&M Activities. S&M of the deactivated facilities and preventive maintenance of remaining operating equipment continued through April. S&M work was performed on supply and exhaust fans, high-efficiency particulate air (HEPA) filter systems, and small instrument air compressors. No major problems were discovered during this reporting period. Herbicide application continued at all waste sites. A mild winter and wet spring has created a vigorous weed-growing period.

A work package was prepared and mobilization commenced for the pipe removal and chemical cleaning of the resin regeneration tanks at the N Reactor 163-N facility. N Reactor asbestos abatement began at the 1304-N emergency dump tank.

- **N Area Project Highlights**

Cleanout of N Basin showed significant progress during this period. Of particular importance was the completion of sediment relocation from the basin floor cubicles and commencement of shielding installation over the basin. Water removal and transportation to the ETF is expected to begin in late May.

Hardware Removal. Removal of high exposure rate hardware (HERH) and low dose debris from N Basin continued. Monolith #31 (of 33) was grouted and transported to the ERDF for disposal. Removal of the final conex box was also completed.

Fuel Fragments Disposition. Fuel retrieval and packaging continued. A total of 166 lbs. of fuel have been packaged in preparation for the second and final shipment. A total of 339 lbs. have been located to date.

Radiation Shielding Installation. Installation of shielding covers over the discharge pit, north basin, and segregation pit has been completed. South basin cover installation is progressing.

Sediment Removal. Sediment relocation activities were completed in April. Mobilization of the sediment removal subcontractor began. The final design of sediment removal support equipment was completed. The Washington State Department of Health (WSDOH) approved the *Notice of Construction* (air permit) for removal of 375 cubic feet of sediment. The permit has been modified and resubmitted to reflect an increase of 7% (to approximately 400 cubic feet) after final sediment quantities were measured.

N Basin Dewatering. Installation of dewatering equipment began in April. Coordination meetings with ETF personnel are ongoing. The current plan is to off-load and release an average of six tankers per day for 33 days.

N Area Facilities Deactivation. Deactivation of the 107-N recirculation facility was completed. Minor punch list items remain. The remaining facilities to be deactivated have been identified and walked down. Work is being coordinated with the completion of N Basin activities. Design of the 105-N charge elevator pit and fission product trap water level monitoring instrumentation was completed in April.

- **Program Management and Support**

A new Richland Property System database was implemented. This database will provide electronic monthly property cost information.

In support of the ER Project paperless office initiative, Document & Information Services (DIS) established an electronic checklist to support approval of the ER Project's Document Management System (DMS) as the official record repository for the ER project. The RL Records Officer is reviewing this material within the context of a site-wide policy.

The ER portion of the *Hanford Site Priority List* for FY2000 was completed.

Capital accounting issues (betterment vs. maintenance) were resolved for D&D/S&M projects with RL. The primary concern involved the installation of roofs for ISS of the reactor facilities, and final closeout/revegetation of the waste sites, since these items cannot be moved or stolen and have no residual value. RL determined that new roofs installed on buildings in support of ISS activities should be capitalized (if scope meets capitalization criteria). Other S&M activities to surplus facilities awaiting demolition should be considered an expense activity. If the modification reaches the betterment threshold, a waiver should be requested from RL.

The *Year 2000 Risk Assessment* was completed for the ER Project Corrective Action Tracking System (CATS) database.

As a follow-up to a comment received by the DOE EH-24 assessment team, Radiological Control (RadCon) performed a review of self-assessment activities for the period of January 1996 to the present to determine the status of the three-year review of all areas of the RadCon program (as required by 10 CFR 835). Areas that require further review have been identified, and action is being taken to complete those reviews by the end of calendar year (CY) 1998.

The RL Performance Assessment Division (PAD) completed a site-wide assessment of Hanford's lessons learned and occurrence reporting systems. The ERC portion of the assessment resulted in no findings, and only four applicable observations.

ISSUES

1) Remedial Action and Waste Disposal: Due to the discovery of additional plumes and unexpected waste types, several *Hanford Federal Facility Agreement and Consent Order* (*Tri-Party Agreement*) milestones will need to be resequenced.
Strategy/Status: A *Tri-Party Agreement* change package has been prepared and will be discussed with the regulators at the quarterly review meeting on June 2.

COST PERFORMANCE ($M)

	BCWP	ACWP	VARIANCE
Total ER Project	$78.1	$76.9	$1.3

The $1.3 million (2 percent) favorable cost variance is as a result of remedial action efficiencies in the 100 Areas, reduced groundwater resin change outs, and savings in S&M and Program Management and Support (PM&S) activities.

SCHEDULE PERFORMANCE ($M)

	BCWP	BCWS	VARIANCE
Total ER Project	$78.1	$82.5	($4.4)

The $4.4 million (6 percent) unfavorable schedule variance is primarily due to discovery of additional plumes and waste types at the remediation sites; significantly increased efforts required to start the ORR at the 233-S demolition project; and delayed workforce restructuring.